MARINE CORPS FIELD ARTILLERY FIRE CONTROLMAN COURSE

MAP READING

Objective: To familiarize the student with Military Maps.

DEFINITION OF A MAP

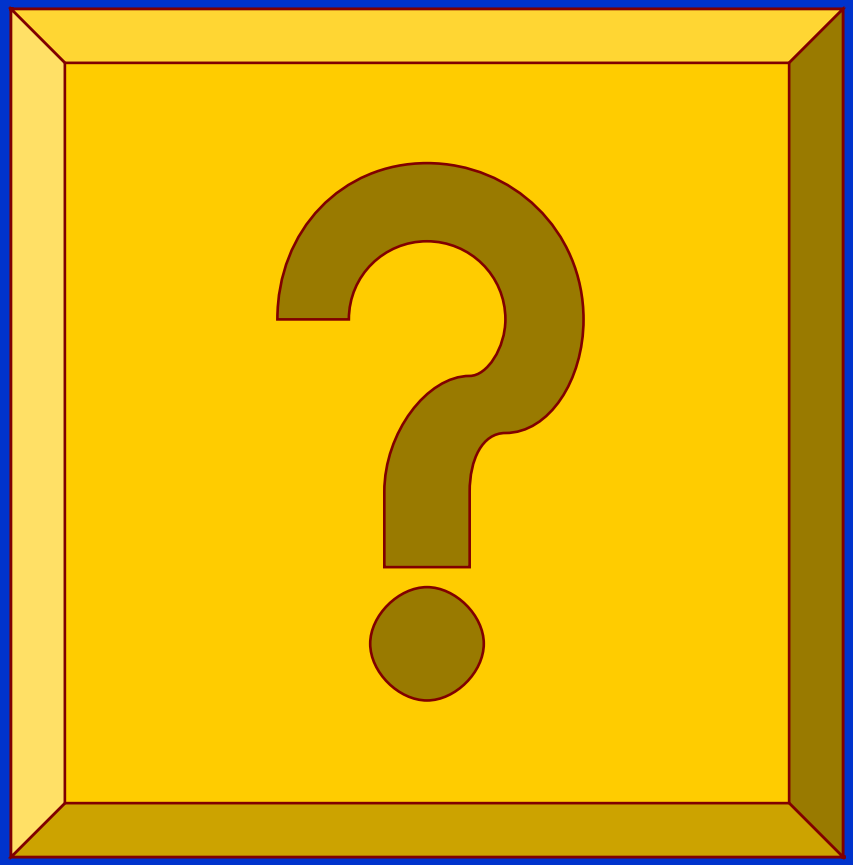
A MAP IS A GRAPHIC REPRESENTATION, DRAWN TO SCALE, OF A PORTION OF THE EARTH'S SURFACE AS SEEN FROM ABOVE.

PURPOSE OF A MAP

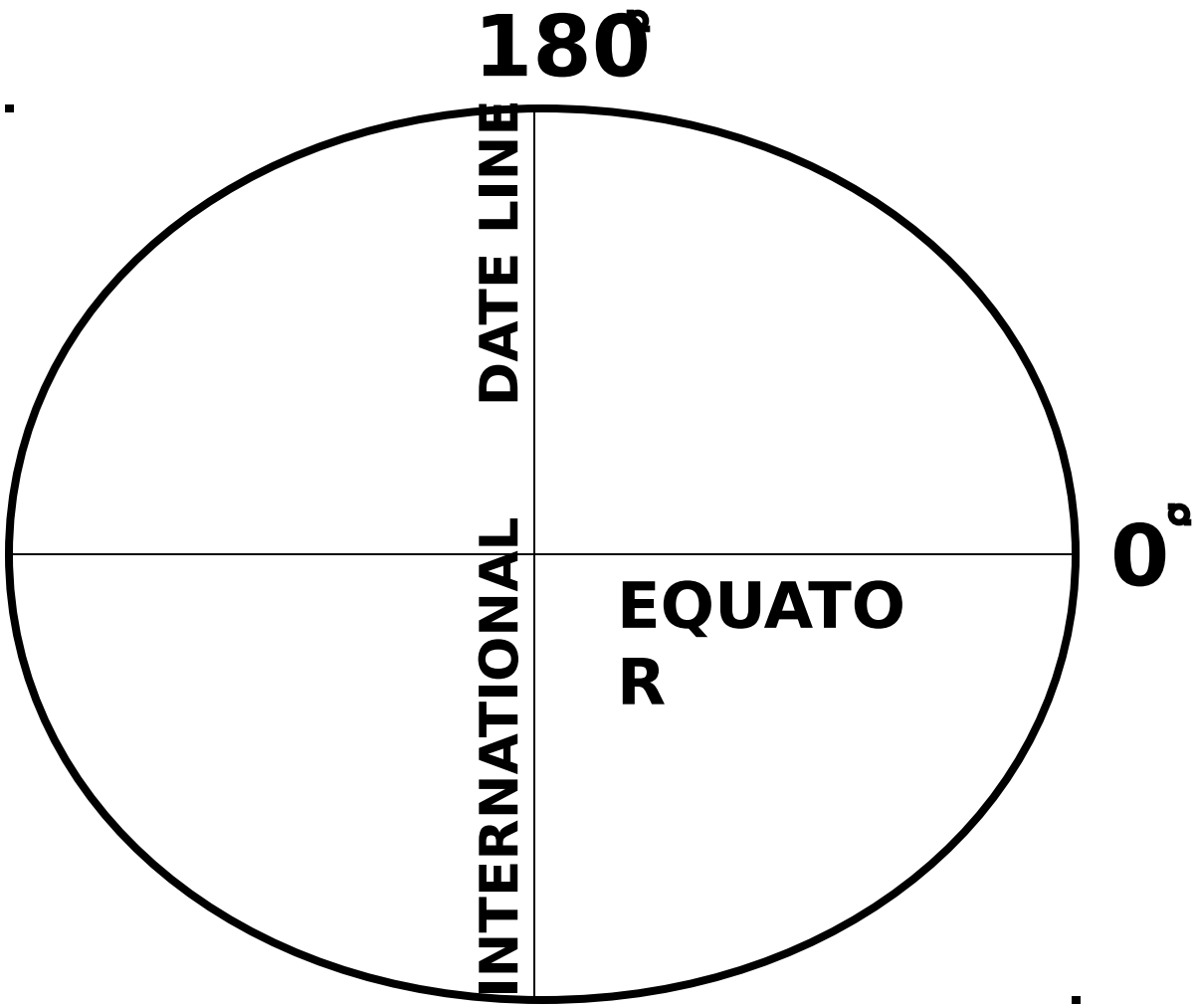
- **THE PURPOSE OF A MAP IS TO PROVIDE INFORMATION ON THE EXISTENCE, LOCATION OF, AND THE DISTANCE BETWEEN GROUND FEATURES. IT ALSO INDICATES VARIATIONS IN TERRAIN, HEIGHTS OF NATURAL FEATURES AND THE EXTENT OF VEGATATION COVERED.**

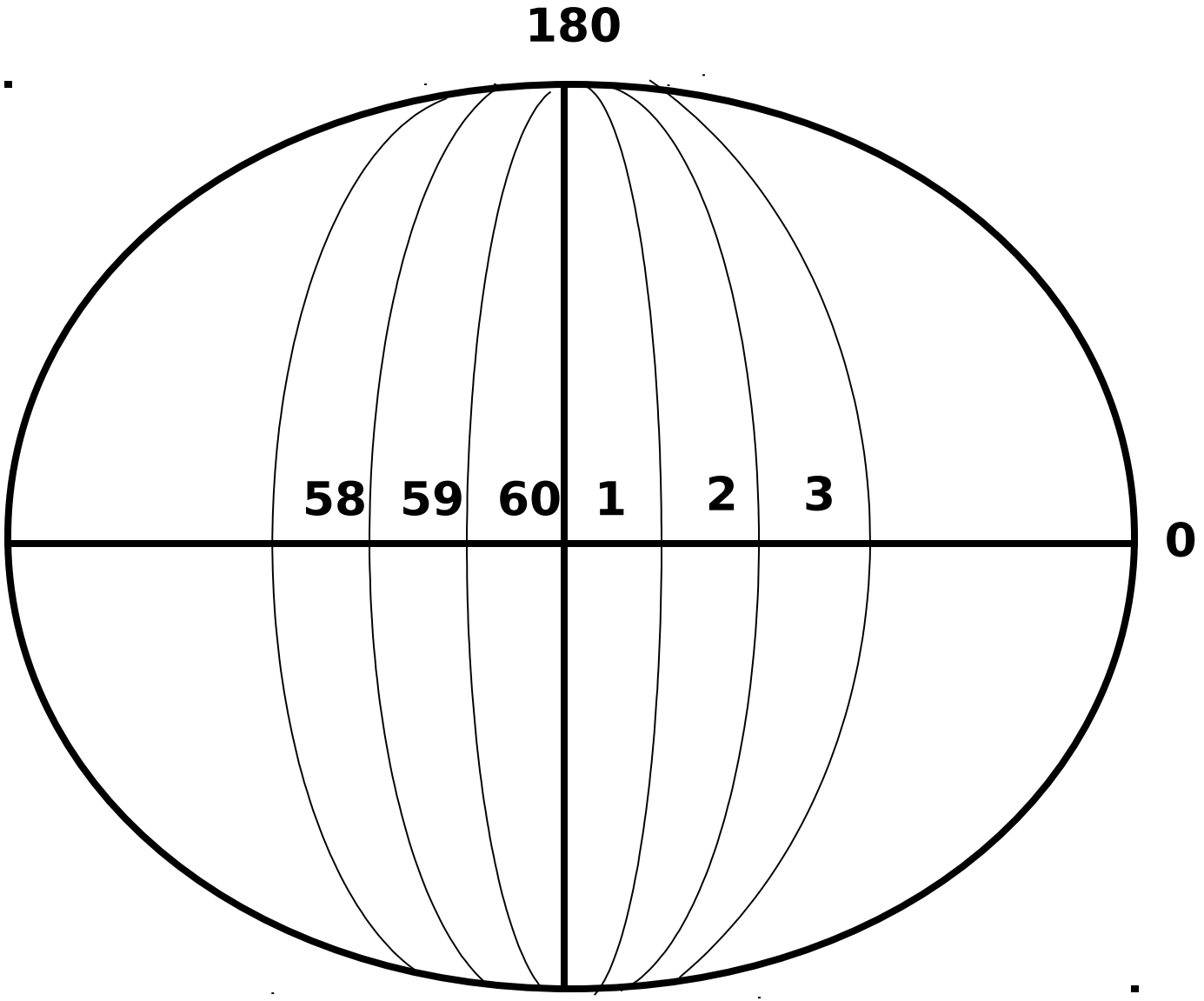
TYPES OF MAPS

- **PHOTOMAP – Is a reproduction of an aerial photograph upon which grid lines and other information have been placed.**
- **MILITARY CITY MAP – Is a topographical map of a city, delineating streets and showing street names, important buildings, and other urban developments of military importance.**
- **SPECIAL MAPS – A map that has been modified to give information not covered on a standard map.**
- **TERRAIN MODEL – A model of a portion of the earth's surface, made to scale, and is generally used in the planning or assault phase.**
- **TOPOGRAPHIC MAP – Portrays terrain features as well as the horizontal positions of features. Vertical positions, or relief, are represented by contour lines.**



MILITARY GRID REFERENCE SYSTEM




180
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59
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2
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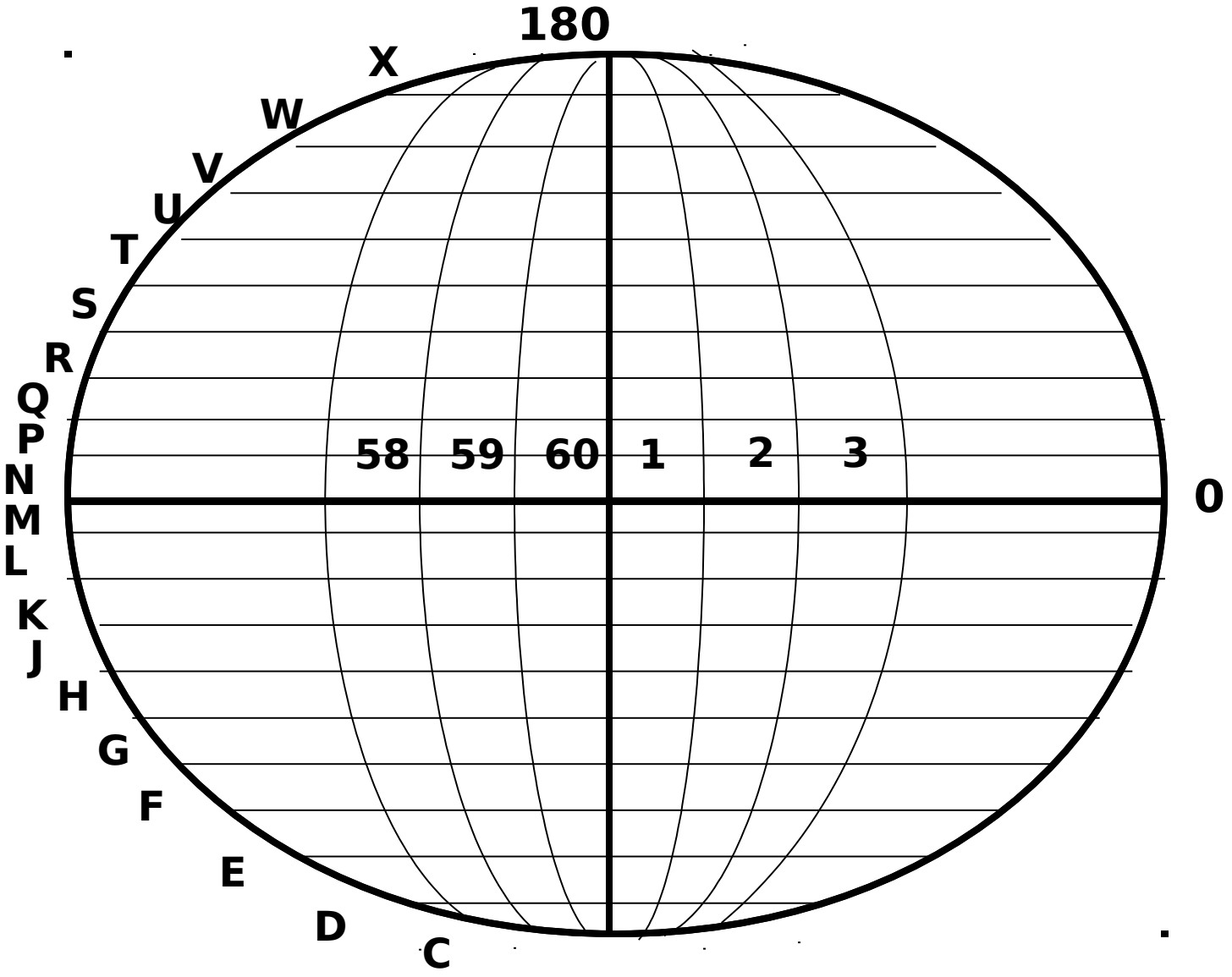
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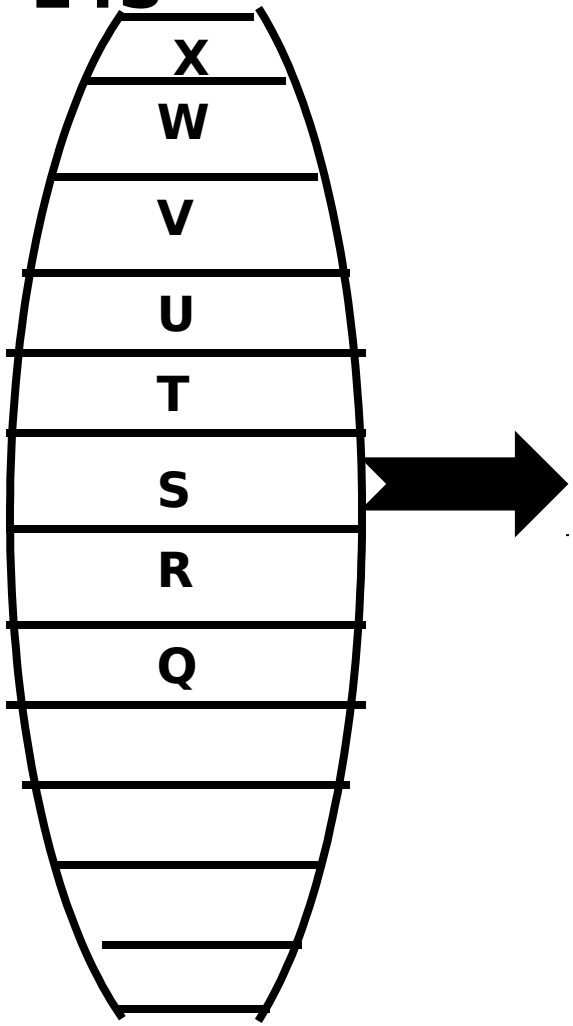
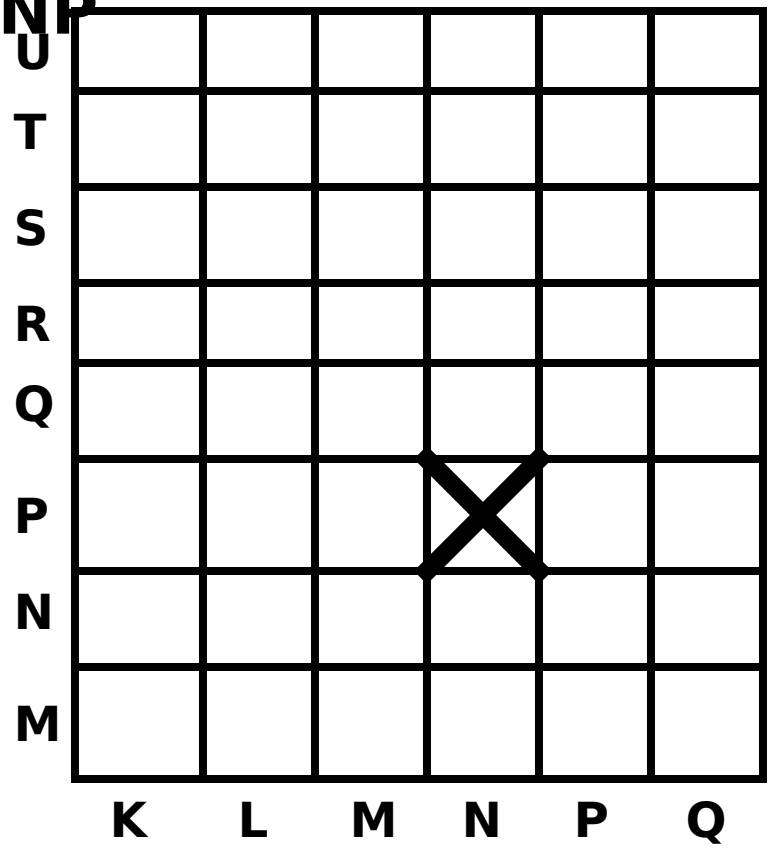
GRID ZONE 14S

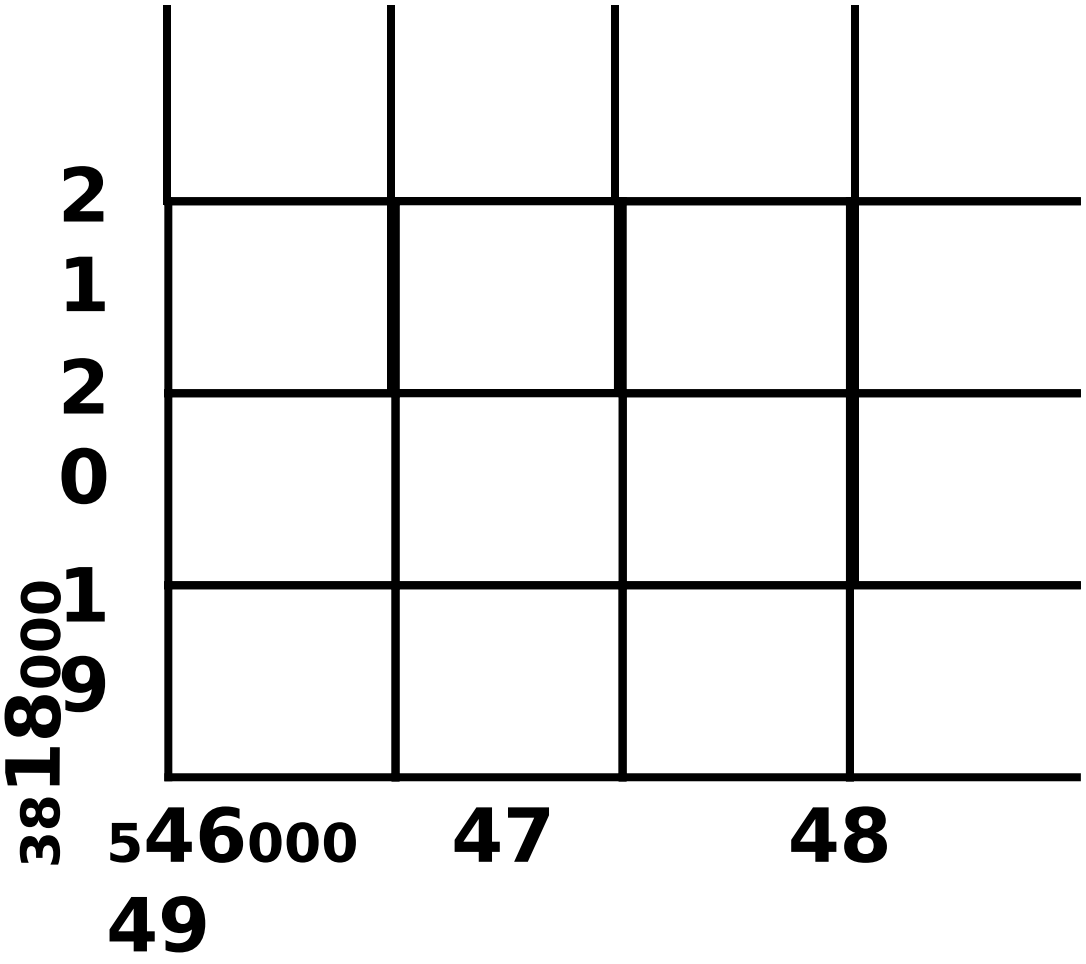


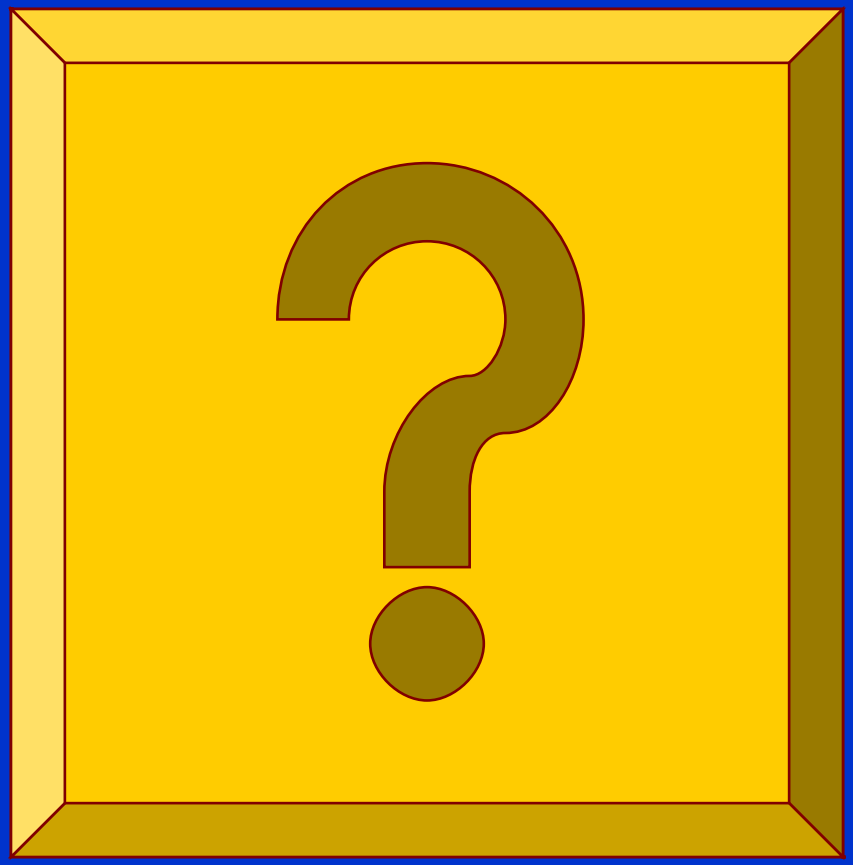
100,000 METER SQUARE NP



100,000 METER SQUARE

LAWTON MAP SHEET





LOCATING A POINT USING GRID COORDINAT

READ RIGHT, THEN UP

4 DIGIT = 1000 METERS

6 DIGIT = 100 METERS

8 DIGIT = 10 METERS

10 DIGIT = 1 METERS

COORDINATE SCALE:

DIVIDES THE 1.000 METER GRID SCALE MORE ACCURATELY THAN ESTIMATION.

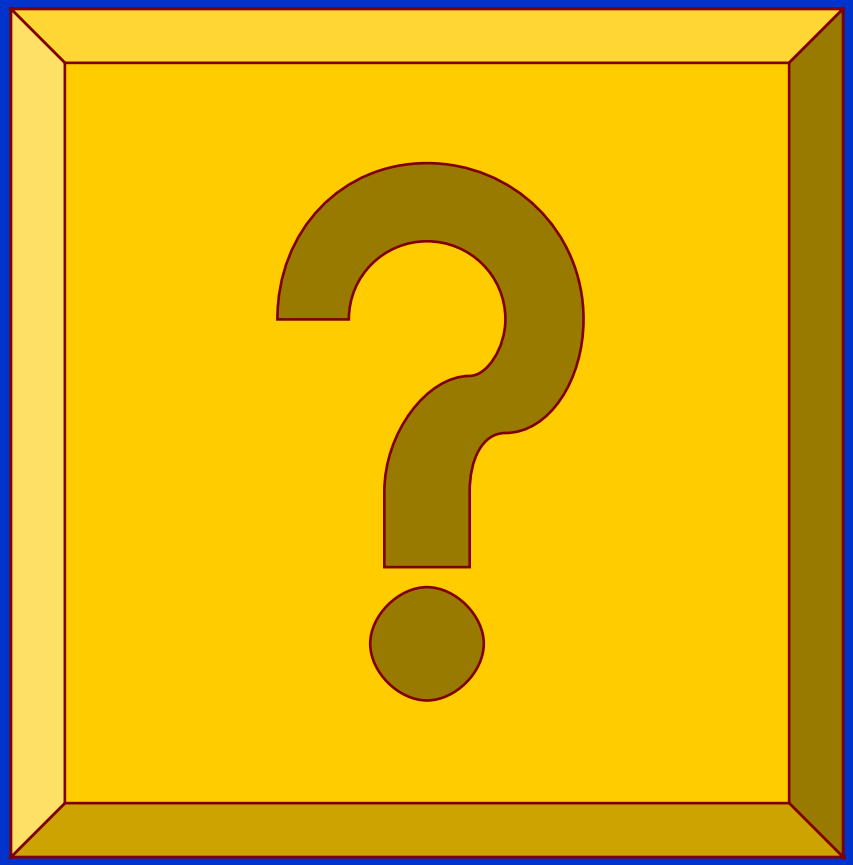
1. PRIMARY GRADUATIONS.

2. SECONDARY GRADUATIONS.

PLOTTING TIME

Find the Point

- 50 41
- 629 271
- 528 258
- 6178 3691
- 6403 3899



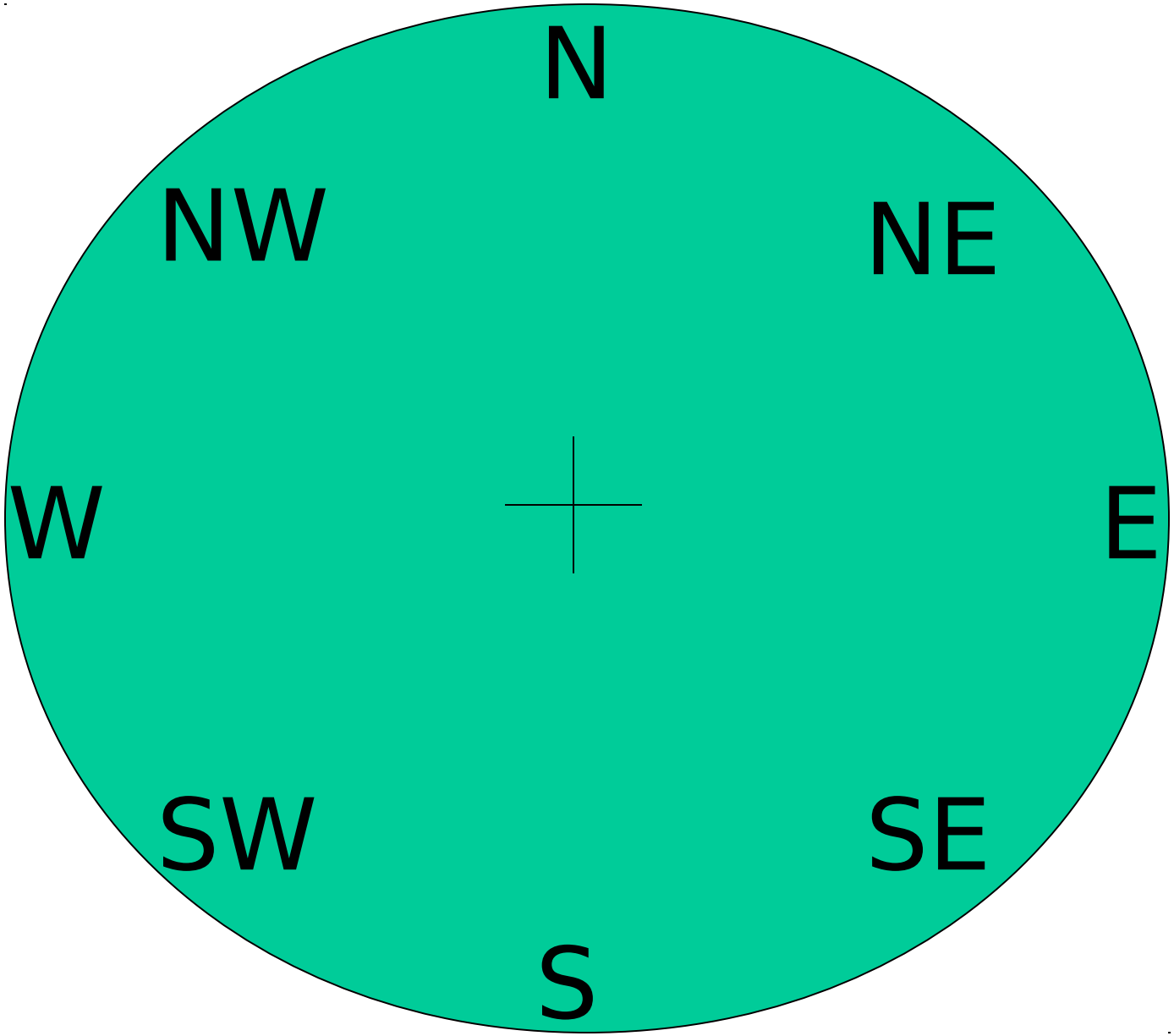
DIRECTION

Defined as a line along which an object is moved, sighted, or aimed.

There are several methods of reporting direction.

1. Cardinal direction. The simplest an oldest method of reporting direction.

Cardinal Direction



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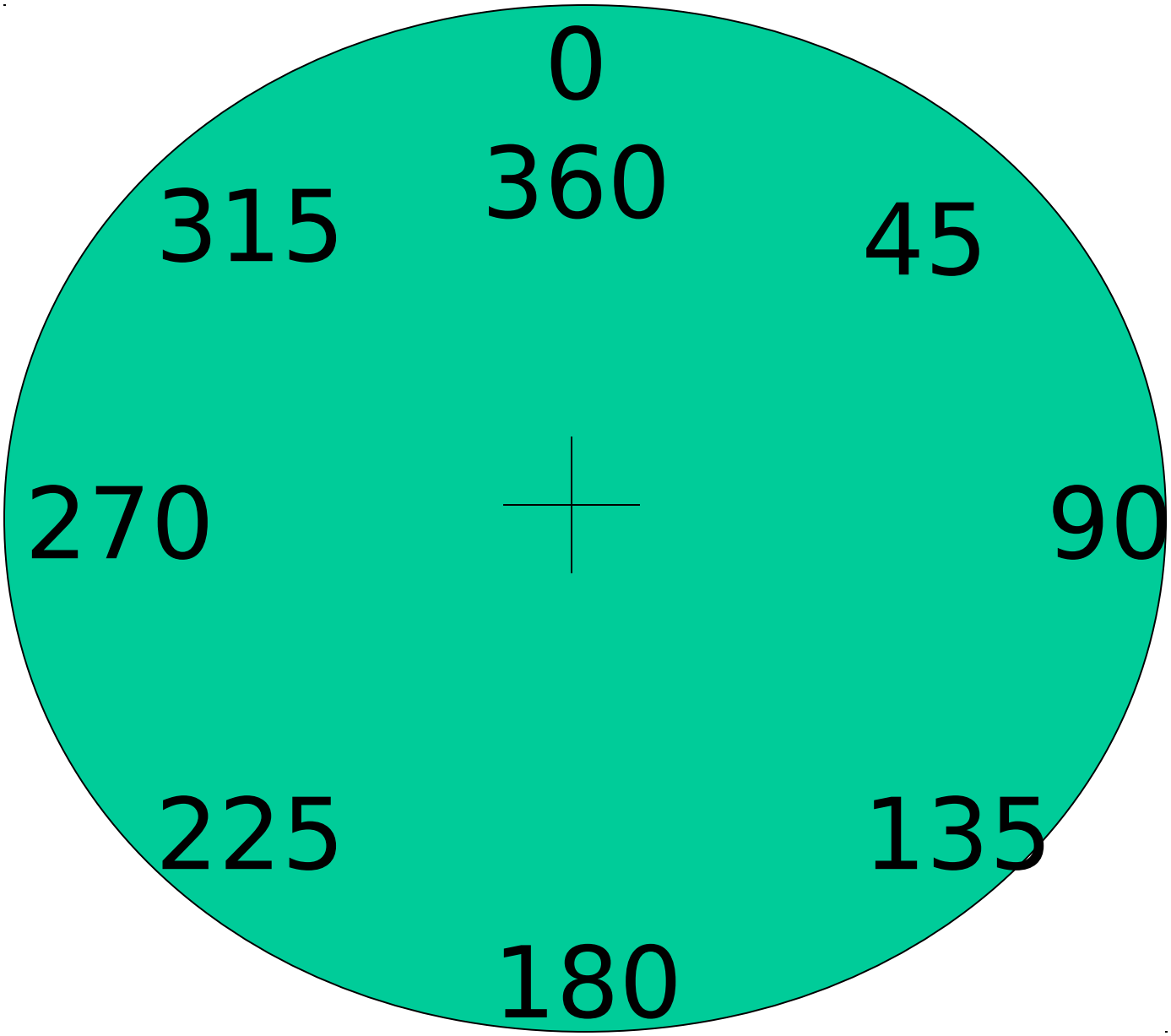
2. Degrees. The most common used unit of measure.

Degrees



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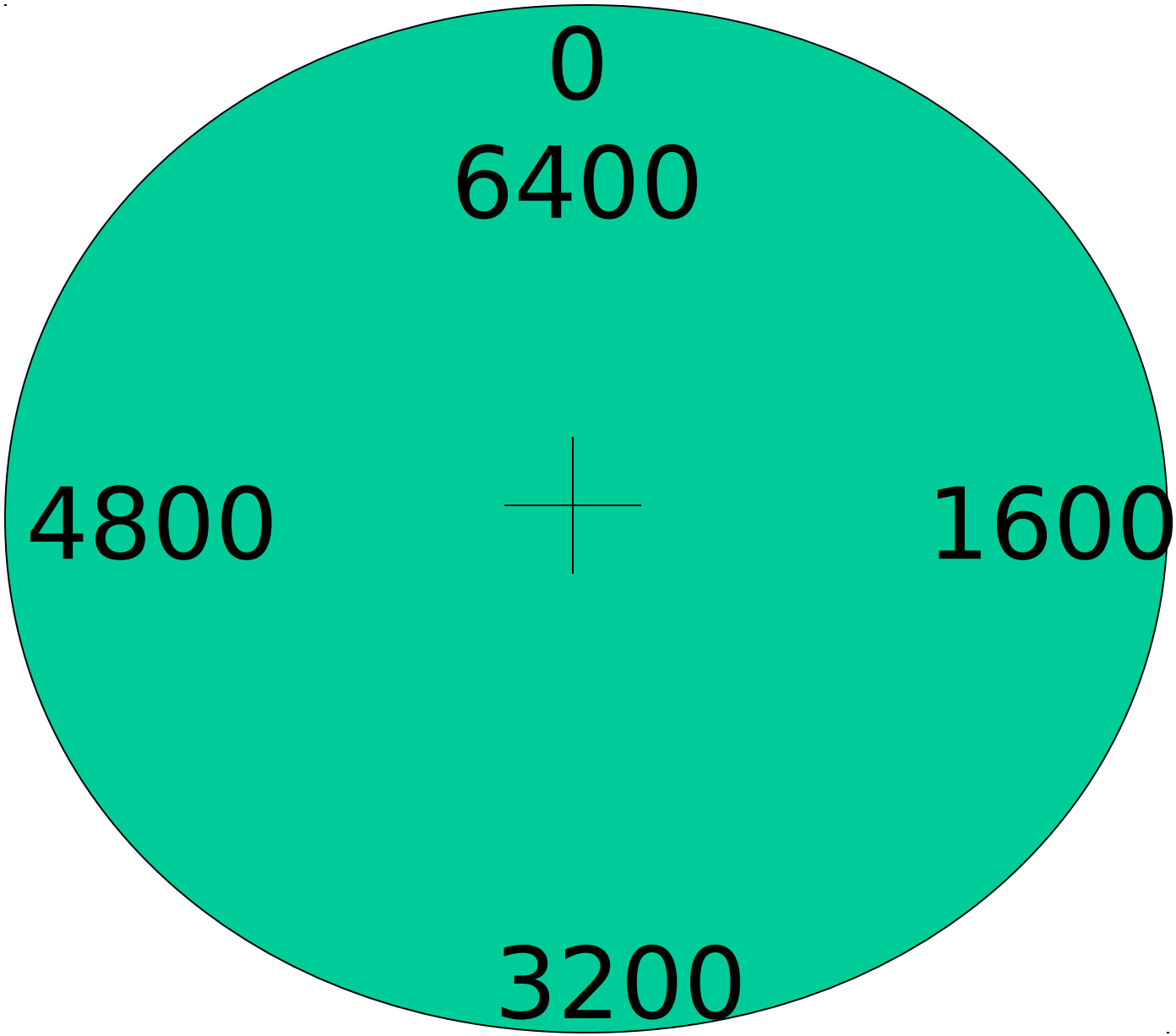
3. Mils. A unit of measure for angles based upon angle subtended by 1/6400 of the circumference circle.

Mils



- **AZIMUTH – A horizontal, clockwise angle measured from a reference (base line) to an object. Azimuths are reported as a 4 digit number.**

- **THREE TYPES OF AZIMUTH**
  1. **True Azimuth**
  2. **Magnetic Azimuth**
  3. **Grid Azimuth**

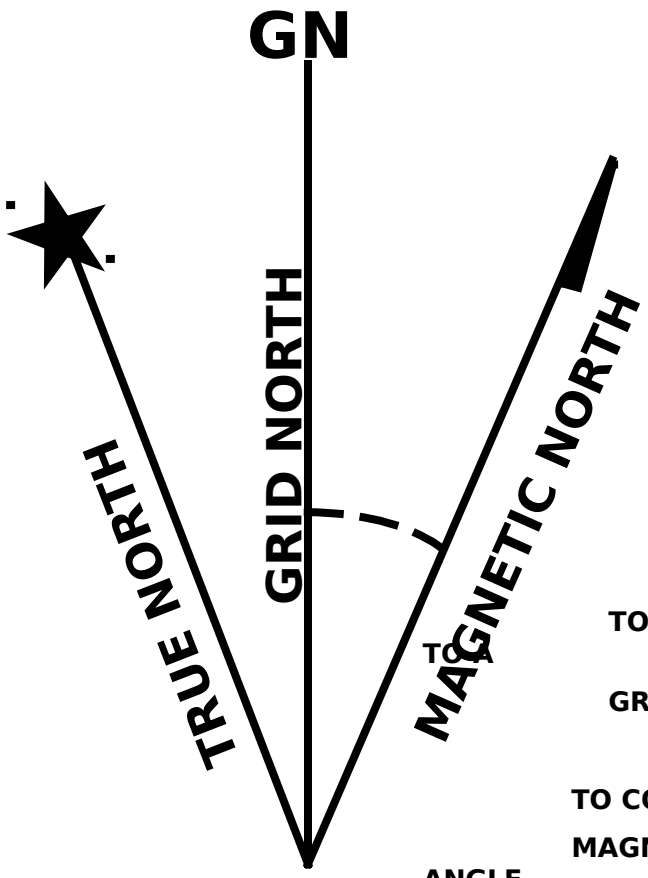
BASE LINES

- **TRUE NORTH - An imaginary line from any point on the earth's surface that points to Polaris (the North Star).**

- **MAGNETIC NORTH - An imaginary line from any point on the earth's surface that points to the magnetic North Pole.**

- **GRID NORTH - A line from any point on a map that points to the top of the map.**

DECLINATION DIAGRAM



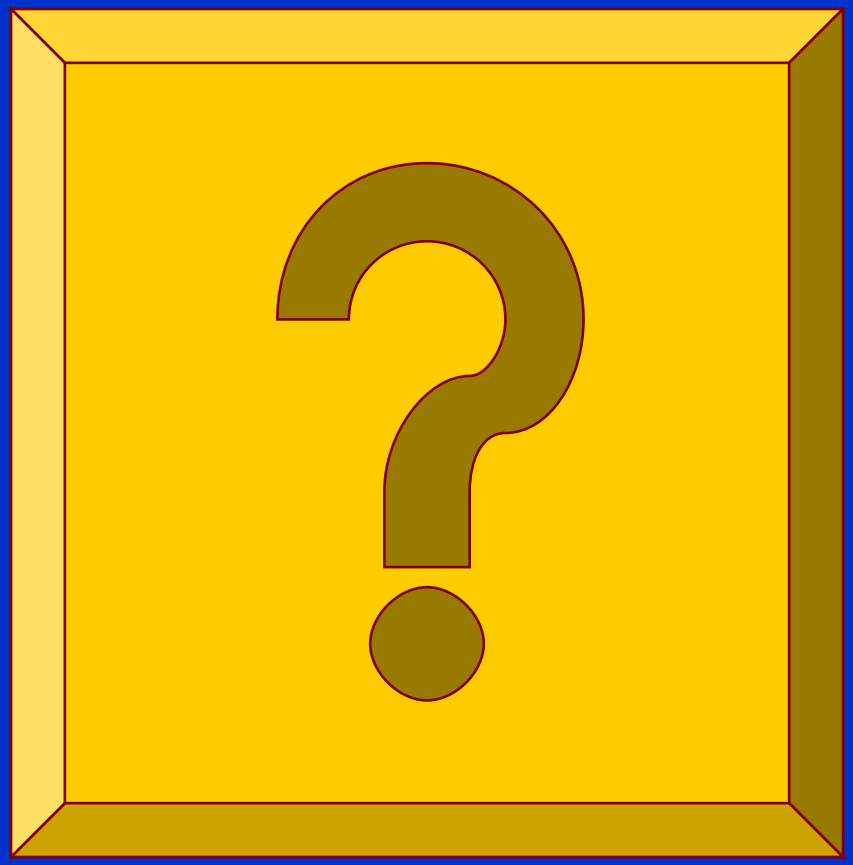
1975

G-M ANGLE

8 1/2 (150 MILS)

TO CONVERT A MAGNETIC AZIMUTH TO A GRID AZIMUTH ADD G-M ANGLE

TO CONVERT A GRID AZIMUTH TO A MAGNETIC AZIMUTH SUBTRACT G-M ANGLE



ALTITUDE

- **VERTICAL DATUM PLANE - Elevations depicted on a map are based on a reference, called the vertical datum plane. This is normally mean sea level.**
- **ELEVATION - Elevation of a point on the earth's surface is the vertical distance it is above or below the vertical datum plane. In artillery this is referred to as**
- **ALTITUDE. Altitude is determined by using the contour lines on the map and the contour interval. The contour interval on our map is 10 meters.**

CONTOUR LINES

400
X 382
350